

# Real-time, Wireless, Remote Heart Arrhythmia Monitoring System

## *The MetroHealth System*



### TECHNOLOGY

NASA Glenn Research Center has partnered with the MetroHealth System, to develop a heart arrhythmia monitoring system that utilizes Embedded Web Technology to wirelessly transmit real-time EKG data to physicians anywhere in the world.



*Prototype of the early warning system device used to identify cardiac arrhythmias.*

### COMMERCIAL APPLICATION

NASA is currently seeking commercial medical device manufacturers and/or investors who wish to pursue this technology. The major steps have been taken by the team to quantify the opportunity, identify the technical risks and to further the development of an operational system.

### SOCIAL / ECONOMIC BENEFIT

The Heart Arrhythmia Monitoring System will enhance the quality of life for those patients traditionally requiring the use of Holter monitors or event records. The “real-time” monitoring device permits patients to resume daily activities while being monitored by a medical staff around-the-clock. Prior to the patient encountering any symptoms of arrhythmias, the medical staff will be aware of the symptoms, notify the physician, and locate the patient using Global Positioning System (GPS) technology.

### NASA APPLICATIONS

NASA is responsible for the health and safety of astronauts in space. The risk of occurrence of serious cardiac arrhythmias is ranked very high on the risk scale for astronauts. For this reason and for reasons relating to the health of the general population, the NASA GRC team has chosen to expend resources in the area of remote arrhythmia monitoring.

As a result of wireless embedded web technology, a system designed to fly on the International Space Station (ISS) is being designed. This system will monitor cardiac rhythm and QT intervals, and measure microvolt T-Wave alternans, of the ECG as a function of astronaut activity and heart rate. The results of this research will provide additional data regarding any increasing astronaut susceptibility to arrhythmia as a function of time in space.

NASA Contact: David W. York  
Company Contact: David S. Rosenbaum, MD  
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